

# ATOMIC ENERGY *newsletter*®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH  
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

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Dear Sir:

New chairman of the U.S. Atomic Energy Commission will be Glenn T. Seaborg. Dr. Seaborg, who received the Nobel Prize in Chemistry in 1951, has been chancellor of the University of California at Berkeley. Appointed by President Kennedy, Dr. Seaborg will succeed John A. McCone, Los Angeles businessman. He will be the first scientist to head the agency which has always been headed by non-scientists.

Canada-India reactor and other atomic energy facilities were formally dedicated last fortnight at Trombay, India, with officials from some forty nations participating in the ceremonies. Included in the facilities dedicated were the 40 MWT natural uranium heavy water-moderated nuclear reactor built by Canada under the Columbo Plan; a uranium metal plant, fuel fabrication facility, and a zero energy reactor for lattice investigations.

Nuclear Industries, Inc., Valley Stream, N.Y., is a new combined marketing and investment organization which will specialize in radiation and radioisotope applications for industry, research, etc. Headed by Jack R. Carlin as president its functions will be twofold: to operate a nationwide technical marketing organization for firms producing major products for the nuclear radiation market, and to invest in established nuclear firms and new enterprises....New joint venture of Radiation Applications, Inc., and Loral Electronics, Inc., New York firms is Radiation Materials, Inc. Function of the new company will be to investigate the development and marketing of irradiated insulation products such as polyolefin wire and cable, etc. (Other BUSINESS NEWS, p.2 this LETTER.)

Explosion of military prototype power reactor at National Reactor Testing Station, Arco, Idaho (this LETTER, January 17, 1961, p.1) was caused according to the USAEC by an accidental nuclear runaway during start-up of the reactor after a short shutdown. The Commission based its conclusion on meager data available; hot condition of reactor buildings continues to impede the investigation. An advisory committee has decided against extensive decontamination of the building until a determination is made as to whether reconditioning is economically justifiable.

The broad principle of "radiometric exchange", a new supersensitive analytical technique has been patented by Tracerlab, Inc., Waltham, Mass. The patent, number 2,968,722 was issued by the U.S. Patent Office January 17, 1962. It teaches methods of detecting and measuring liquids and gases in the parts-per-billion range by reacting them with a radioactive material and then measuring the radioactivity of the product. The technique is said to have such advantages as continuous unattended monitoring, compactness, selectivity and versatility. (Other PATENTS, p.3 this LETTER.)

Revised control of source material regulations (10 CFR 40) will become effective Feb. 14, 1961. Under the revisions, the USAEC permits industrial firms, research and medical institutions to possess up to 15 pounds of source material--thorium and natural and depleted uranium--at any one time under a general license. At present a license must be obtained for each individual shipment.



ATOMIC ENERGY BUSINESS NEWS...

REGULATIONS ON LAND BURIAL OF RADIOACTIVE WASTE AMENDED: Sites at Oak Ridge National Laboratory and National Reactor Testing Station, Arco, Idaho, have been designated by the USAEC for land burial of packaged low-level radioactive waste by licensees of the Commission, reflecting amended regulations covering standards for protection against radiation (10 CFR 20). The new regulations permit licensees to dispose of very low level wastes by burial in soil, but prohibits burial of waste received from other persons on other than land owned by Federal or state governments. The first two regional sites set up for this disposal are at Oak Ridge and Arco.

ORE OUTPUT INCREASED BY URANIUM PRODUCER: Increased ore output has enabled Stanrock Uranium Mines, Elliot Lake, to reach its maximum permissible delivery rate of just under 175,000 pounds of uranium oxide per month, and accumulate a small stockpile in addition. Its concentrator, now handling about 3,150 tons per day is producing approximately 180,000 pounds of uranium oxide per month. (Stanrock believes that it has enough ore in sight to complete its contract. Development work done to date seems to indicate an adequate tonnage for milling requirements, at least until March 1963, according to mine manager F. R. Jones of Stanrock.)

URANIUM BUYING POLICY CHANGED: South African uranium will in the future be bought by the USAEC under direct contract with the South African Atomic Energy Board instead of through the Combined Development Agency, the joint U.S.--U.K. uranium procurement agency. Under its new contract, 18,900 tons of concentrate will be bought through 1966 at \$11.20 per pound; this is said to be 60¢ less than the CDA price. The Commission will continue to buy Australian and Portuguese uranium through the CDA.

EIGHTH NUCLEAR POWER STATION OF CEGB: Application has been made by England's Central Electricity Generating Board to the Minister of Power and local planning authority preliminary to establishing a nuclear power station at Wylfa in Anglesey, North Wales. Capacity of the station will be about 800,000 kw with start-up date of 1967. It will be the second station for Wales and the eighth of the CEGB. It is planned to connect it into the national grid at 400,000 volts; this will minimize the number of transmission lines required. Nuclear stations under construction in Great Britain include Berkeley, Gloucestershire (275,000 kw); Bradwell, Essex (300,000 kw); Hinkley Point, Somerset (500,000 kw); Trawsfydd, Merionethshire (500,000 kw); Dungeness, Kent (550,000 kw); Sizewell, Suffolk, (580,000 kw).

LOW BID ON REFUELING MACHINE BY EASTERN FIRM: AMF Atomics, Greenwich, Conn., was successful bidder to do conceptual design and development on prototype on-power refueling machine to be used in connection with pressure tube type, heavy water moderated, natural uranium-fueled power reactors. The contract is on cost-plus-fixed-fee basis. Final design, fabrication and testing of the machine is contingent upon Commission approval of the conceptual design and allied development work. The over-all project looks to the successful development of a machine which would permit the loading and unloading of reactor fuel elements in pressure tubes while the reactor is operating at full power. The contract calls for completion of all phases of the project in about two years. (The successful development of these machines is a key feature of the reactors being built by Atomic Energy of Canada, Ltd., and an important consideration for future heavy water reactors in the U.S. The machine to be developed under the AMF contract involves design features different from a refueling machine presently under development in Canada.)

PHYSICAL RESEARCH CONTRACTS LET: Some eight new contracts have been let by the USAEC for unclassified physical research and 64 previously existing contracts have been renewed by the Commission. Of the \$3,283,034 total value of the 72 contracts, some \$644,375 is represented by new contracts and \$2,638,659 by renewed contracts. Among contracts let is a study at General Atomic Division of General Dynamics Corp. of the high temperature chemistry of fission-product elements. Some \$46,549 has been allocated by the USAEC for this work.

COMPUTER CONTRACT AWARDED: Stretch-type computer will be supplied Lawrence Radiation Laboratory, Livermore, Calif., by International Business Machines Corp. Contract in the amount of \$13,500,000 has been awarded IBM by the USAEC for this job.

REACTORS SUPPLIED: The Soviet Union has reportedly sold two reactors to Indonesia. One, a \$2 million facility, will be located in the Jakarta area. The other, a \$200,000 reactor for Gadjah Mada University, will be used for student training and research.

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ATOMIC ENERGY PATENT NEWS...

PATENTS ISSUED January 17, 1961 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:

(1) Methods of flow rate measurement. Edward Shapiro, Jerome Kohl, Richard L. Newacheck, inventors. No. 2,968,721 assigned to Tracerlab, Inc., Waltham, Mass. (2) X-ray image intensifying screen. Michal Ter-Pogossian, inventor. No. 2,968,725 assigned to Mallinckrodt Chemical Works, St. Louis, Mo. (3) Radiation measuring instrument. Richard L. Bersin, Joris M. Brinkerhoff, inventors. No. 2,968,726 assigned to Tracerlab, Inc., Waltham, Mass. (4) Underground exploration apparatus. Howard C. Eberline, inventor. No. 2,968,728 assigned to Eberline Instrument Div. of Reynolds Electrical and Engineering Co., Inc., Santa Fe, N.M. (5) Apparatus for direct measurement of mass per unit area. Thomas P. Pepper, Andrew J. Pressesky, inventors. No. 2,968,729 assigned to Canadian Curtiss-Wright, Ltd., Oakville, Ontario, Canada. (6) Method and apparatus for detecting minute concentrations of gases and vapors. Robert A. Morris, Robert von Heine-Geldern, inventors. No. 2,968,730 assigned to Mine Safety Appliances Co., Pittsburgh, Pa. (7) Device for the exposure of fluid to radiation. Clive M. Yeomans, inventor. No. 2,968,734 assigned to The Martin Co., Baltimore, Md. (8) Treatment of uranium ore of the shinarump type. Frank A. Seeton, inventor. No. 2,968,524 assigned to Cog Minerals Co., Denver.

PATENTS ISSUED January 17, 1961 to GOVERNMENTAL ORGANIZATIONS: (1) Sampling system. Bruce A. Hannaford, Richard Rosenberg, Charles L. Segaser, Clegia L. Terry, inventors. No. 2,968,183 assigned to USAEC. (2) Production of plutonium metal. Ward L. Lyon, Richard H. Moore, inventors. No. 2,968,547 assigned to USAEC. (3) Fuel element for neutronic reactors. Thomas C. Evans, Elmer G. Beasley, Jr., inventors. No. 2,968,601 assigned to USAEC. (4) Reactor-flash boiler-flywheel power plant. Ernest Loeb, inventor. No. 2,968,602 assigned to USAEC. (5) Fusion welding method and apparatus. Walter L. Wyman, William I. Steinkamp, inventors. No. 2,968,715 assigned to USAEC. (6) Beta-gamma personnel dosimeter. Doyle M. David, Edwin D. Gupton, James C. Hart, Andrew P. Hull, inventors. No. 2,968,731 assigned to USAEC.

PATENTS ISSUED January 24, 1961 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS: (1) Impulse powered x-ray apparatus. Morris W. Chisholm, Kenneth E. Nichols, inventors. No. 2,969,464 issued to inventors of record. (2) Balancing unit for use with radiation gauges. Gordon F. W. Powell, inventor. No. 2,969,465 assigned to Molins Machine Co., Ltd., London, England.

PATENTS ISSUED January 24, 1961 to GOVERNMENTAL ORGANIZATIONS: (1) Method of impregnating uranium in graphite. James J. Shyne, inventor. No. 2,969,294 assigned to USAEC. (2) Method of testing thermal neutron fissionable material for purity. Enrico Fermi, Herbert L. Anderson, inventors. No. 2,969,307 assigned to USAEC. (3) Method of producing energetic plasma for neutron production. Persa R. Bell, Albert Simon, Robert J. Machin, Jr., inventors. No. 2,969,308 assigned to USAEC. (4) Neutronic reactor fuel element and method manufacture. Harold M. Finniston, Oliver S. Plail, inventors. No. 2,969,309 assigned to USAEC. (5) Neutronic reactor systems. John J. Goett, inventor. No. 2,969,310 assigned to USAEC. (6) Means for producing plutonium chain reactions. Eugene P. Wigner, Alvin M. Weinberg, inventors. No. 2,969,311 assigned to USAEC. (7) Type fuel element. Harry O. Monson, inventor. No. 2,969,312 assigned to USAEC. (8) Blocking oscillator double pulse generator circuit. John A. Haase, inventor. No. 2,969,507 assigned to USAEC. (9) Nuclear reactor. John J. Grebe, inventor. No. 2,969,313 assigned to USAEC.

NEW BOOKS & OTHER PUBLICATIONS...

Genetics Research. Prepared under the direction of the USAEC's Division of Biology and Medicine. Summary of work in progress at 49 institutions through 101 research contracts or projects. No. TID-4041. (50¢).....Chemistry, Metallurgy & Purification of Plutonium. Charles A. Thomas, editor. Results of work carried out through July 1944 on the preparation of high purity plutonium. No. MUC-JCW 223 (\$5.50).....Radioactive Waste Disposal. Originally prepared as text material for lecture series at Institute of Nuclear Science & Engineering, Argonne National Laboratory, Lemont, Ill. No. ANL-6233. (\$2.75).....Sixth USAEC Air Cleaning Conference. Proceedings of three day conference held July 7-9, 1959 sponsored by Harvard University and USAEC. No. TID-7593. (\$4.00).....Survey of Solid State Gamma Neutron Detection Systems. Work done at Army Chemical Center, Md. No. PB-171, 124. (\$1.75).....Radioactivity in Water Supply and Waste Water Systems; Peacetime Detection and Control. Work by staff of Navy's Bureau of Yards & Docks, Wash., D.C. No. PB-171,091. (\$2.25).....Office of Technical Services, Wash. 25, D.C.



The first part of the paper discusses the importance of the study of the history of the United States. It is argued that a knowledge of the past is essential for a full understanding of the present. The author then proceeds to discuss the various factors that have shaped the development of the United States, including the role of the government, the economy, and the culture.

In the second part of the paper, the author examines the role of the government in the development of the United States. It is argued that the government has played a crucial role in shaping the country's history, from the founding of the nation to the present day. The author then discusses the various ways in which the government has influenced the economy and the culture.

The third part of the paper discusses the role of the economy in the development of the United States. It is argued that the economy has been a major factor in the country's growth and development. The author then discusses the various ways in which the economy has influenced the government and the culture.

The fourth part of the paper discusses the role of the culture in the development of the United States. It is argued that the culture has been a major factor in the country's identity and development. The author then discusses the various ways in which the culture has influenced the government and the economy.

NEW PRODUCTS, PROCESSES, INSTRUMENTS...

NEW PRODUCTS: Model 52-26 magnetic tape input-output device is to be offered this Spring as a standard accessory for this company's analyzers. The device is said to add to the capabilities of the analyzer the possibility of external storage and/or re-entry of digitalized data into the analyzer memory. External data processing is also added by means of a series of multiplier switches of 0.1, 1, 10 or 100%. ....A mobile analyzer table and accessory cabinet, Model 73-1, allows a multi-channel pulse height analyzer and accessory instrumentation to be made completely portable. -- Radiation Instrument Development Laboratory, Inc., Northlake, Ill.

Automatic sample changer said to efficiently handle up to 30 solid radioactive samples and which may be used for automatic absorption curve measurements has been added to the nuclear instrument line of this firm. The changer holds planchet samples up to 30 mm. in diameter and 3 mm. or 8 mm. high. It can be used with proportional flow counter, Geiger tubes or alpha, beta and gamma scintillation detectors. Printing is performed by an electric typewriter which can be hand operated to make margin notes on the tape. -- Picker X-Ray Corp., White Plains, N.Y.

Model SC-100 Multi-Matic sample changer accommodates fifty samples--alpha, beta or gamma emitters--of any size up to two inches. Samples are transported on a heavy duty flexible drive in a horizontal "Multi-Loop" configuration. The horizontal sample drive allows instant sample accessibility and samples may be loaded or removed quickly and easily without disturbing other samples or the sample being counted. -- Tracerlab, Inc., Waltham 54, Mass.

MANUFACTURERS' NEWS: Triga-type research reactor has been bought by Columbia University from General Dynamics Corp.'s General Atomic division; it will be the first nuclear reactor to be installed and operated in New York City. The Columbia Triga will be a Mark II above-ground model with a normal operating power of 10 kw (thermal) and will be capable of being "pulsed" for fractions of a second to high peak power levels for studies of radiation effects on materials and other specimens. Columbia will pay for the reactor from a National Science Foundation grant of \$247,000.

Manufacture and marketing of General Electric Co.'s line of neutron detection devices has been transferred to the company's Atomic Power Equipment Department, San Jose, Calif. The devices include proportional counters, fission counters, compensated ion chambers, uncompensated ion chambers, and gamma sensitive ion chambers. The product line had formerly been manufactured by the company's instrument department, West Lynn, Mass.

Radiation Dynamics, Inc., Westbury, N.Y., has received \$90,000 contract from Brookhaven National Laboratory, Upton, N.Y., for construction of an RDI "Duo-Dynaply" power source. The power source which is basically an accelerator without the acceleration tube will be used with Brookhaven's alternating gradient synchrotron as part of its energy analyzing system.

The weak radioactive emission of tritium is used to provide ionization for a new line of vacuum gauges marketed by Radiation Research Corp., Westbury, N.Y. There is no detectable external radiation, the company states, and there are no special licensing requirements for possession of this instrument.

MANUFACTURERS' LITERATURE: Catalog 60 of Nuclear Instruments & Accessories, Inc., 150 Fifth Ave., New York 10, N.Y., lists complete line of instruments for laboratory and industrial use.

Film badge service of Nucleonic Corp. of America, 196 Degraw St., Brooklyn 31, N.Y., is described in new brochure issued by that company.

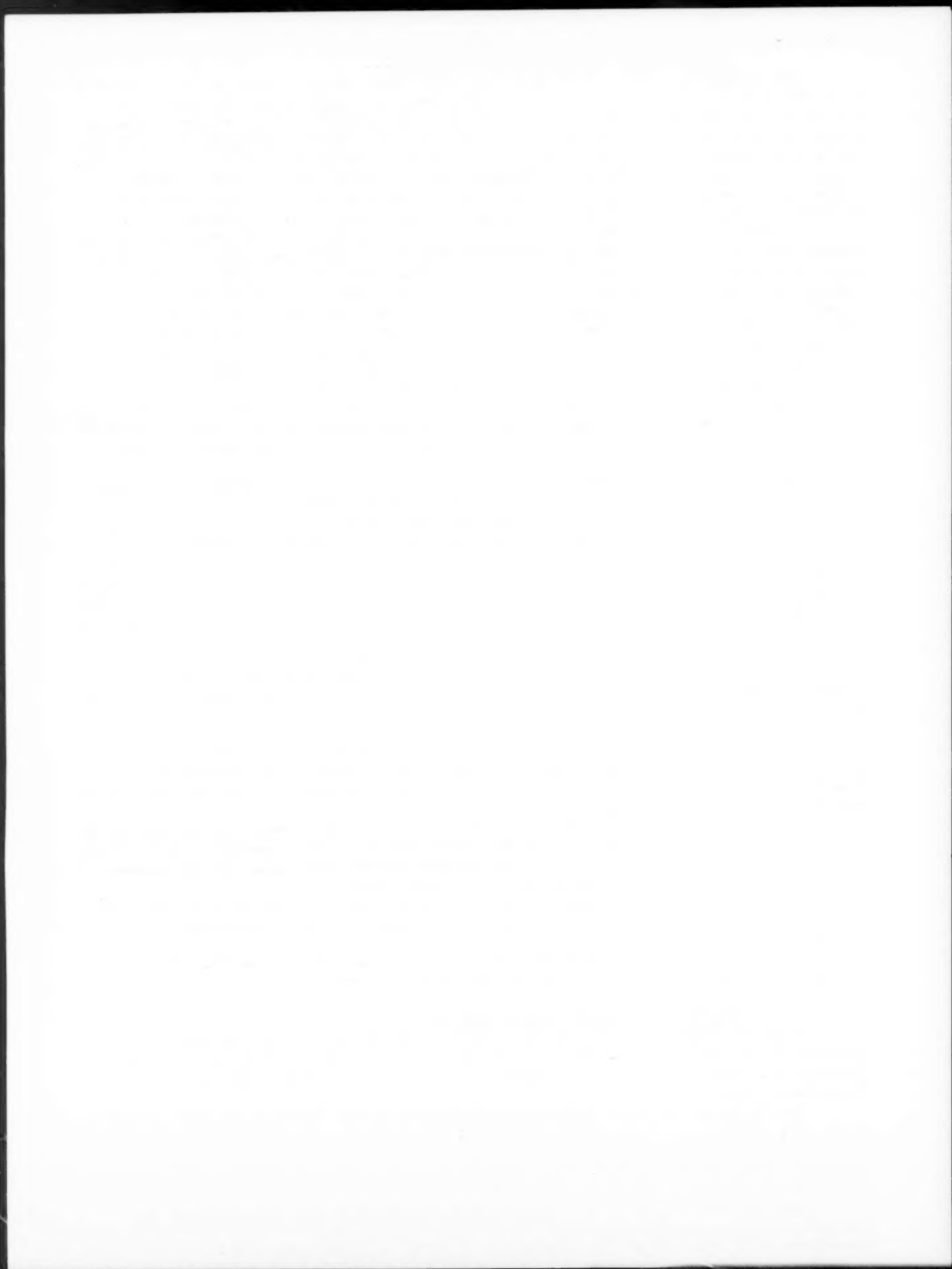
PEOPLE...in atomic energy work...

Ralph D. Bennett has joined the staff of The Martin Co. in the newly-created position of director of research. Dr. Bennett comes to Martin from the General Electric Co., where he had been manager of its Vallecitos Atomic Laboratory, Pleasanton, Calif.

Roy F. Gross has been named general manager of the Canadian Nuclear Association. Mr. Gross is a professional engineer.

Herman L. Dulberg has been appointed chief mechanical engineer of Radiation Dynamics, Inc., Westbury, N.Y. Mr. Dulberg comes to RDI from Sorensen & Co. where he had been manager of the engineering section.

John M. Hennessy has been appointed vice-president and assistant to the president of Nuclear-Chicago Corp., Des Plaines, Ill. Mr. Hennessy had been associated with the management consultant firm of A. T. Kearney & Co.





MEETINGS, COURSES, CONFERENCES...

MEETINGS: Radioisotopes for Industry Meeting is scheduled for February 22-23, 1961 in Pittsburgh, Pa. It will be co-sponsored by Pittsburgh chapter, American Nuclear Society, and Chamber of Commerce of Greater Pittsburgh. Full details may be obtained from P. Stipanovich, Chamber of Commerce, Pittsburgh 19.

Annual American Power Conference, to be held March 29-31, 1961 in Chicago, will include special sessions on new developments in nuclear power generation. Conference is being sponsored by Illinois Tech and other cooperating universities and societies. Additional information may be obtained from R. A. Budenholzer, Illinois Institute of Technology, Chicago 16, Ill.

Symposium on Nucleonics in Flight will be sponsored by North Texas section of American Nuclear Society. It is scheduled for March 28-29, 1961 in Dallas, Tex. Full program is available from E. L. Burkhard, Convair Div., Forth Worth, Texas.

First annual meeting and conference of the Canadian Nuclear Association is to be held May 16-17, 1961 in Toronto. Some 250 members and others are expected to attend; speakers will be from the U. S. and Canada. The newly formed Association is headed by I. F. McRae, as president.

COURSES: Eight week institute in nuclear physics will be sponsored by the USAEC at Oak Ridge, Tenn., next Summer for faculty members of small colleges. To be held June 26 through August 18, the program will be conducted by Oak Ridge Institute of Nuclear Studies in cooperation with the National Laboratory there. It will be limited to 20 physics teachers on the basis of applications. Complete information, applications blanks, etc., are available from ORINS, P. O. Box 117, Oak Ridge, Tenn. ....From June 19 through September 15, 1961, ORINS will offer a special training course for 20 secondary-school science teachers and administrators. The course is financed by a grant from the National Science Foundation. Cost of the three-month session; loan of approximately \$1,200 worth of demonstration apparatus to each participant; supplementary literature; etc., will be contributed by the Institute. Details are obtainable from ORINS, as above.

ATOMIC ENERGY FINANCIAL NEWS...

USAEC BUDGET INCREASED: Budget of the USAEC for fiscal year 1962 is \$2.68 billion an increase of \$20 million over fiscal year 1961. As transmitted to Congress by the President, the total reflects an operating budget of \$2,486,000,000 with \$174,950,000 for construction of new facilities for which obligational authority will be requested. Some \$120,005,000 for equipment outlays is included in the operating estimates. Operating expenses include weapons expenditures of \$590,200,000; physical research expenditures of \$171,304; biology and medicine expenditures of \$59,940,000; civilian applications, \$12 million; raw materials, \$578,599,000; special nuclear materials, \$560,493,000; and reactor development, \$422,400,000.

For plant acquisition and construction, special nuclear materials will require expenditures of \$38,425,000; weapons, \$24 millions; reactor development, \$46,275,000; physical research, \$55,190,000; biology and medicine, \$3,310,000; and community operations, \$6,620,000.

To handle reactor development, civilian power reactors will require \$105,000,000; cooperative arrangements, \$24,600,000; and for EURATOM \$2,700,000 will be required. Research and development support for the civilian reactor program will require for general purposes \$47,200,000; for merchant ship propulsion, \$11,400,000; for Army power reactors, \$11,500,000; for Naval propulsion reactors, \$94,700,000; for aircraft propulsion reactors, \$33,000,000; for missile propulsion reactors, \$20,150,000; for rocket propulsion reactors, \$29,900,000; for satellite and small power resources, \$19,000,000; and for equipment and operational services, \$22,200,000.

Sincerely,

The Staff,  
ATOMIC ENERGY NEWSLETTER

January 31, 1961